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10/018,980	06/06/2002	Harald Grewe	(H)01PH0405USP	5962

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M Robert Kestenbaum
11011 Bermuda Dunes N E
Albuquerque, NM 87111

EXAMINER

AMRANY, ADI

ART UNIT	PAPER NUMBER
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2836

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/018,980	Applicant(s) GREWE ET AL.	
	Examiner ADI AMRANY	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-23, 25, 26 and 28-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-23, 25, 26 and 28-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed June 11, 2008 have been fully considered but they are not persuasive. The motivational statement to combine Buhring and Ying is rewritten. The previous non-final rejection (December 5, 2007) had used the phrase supplied by the applicants in claim 1 "a control a data transmission installation." This rejection rewrites the field of endeavor as "connecting modules to a supply voltage in series."

Further, Ying was introduced as a secondary reference because it discloses the connecting device comprises an ascertaining device. The limitation of applying a low voltage to the supply voltage output is met by Prendel. Thus, the argument that Buhring and Ying do not properly combine to disclose this limitation is not persuasive.

Claim Objections

2. Claim 21 is objected to because it is unclear which of the previously listed components contains the function of "with current limiting and below the voltage required by a bus user" (lines 10-11). Further, the phrase starts with a comma that was not deleted in the amendment of June 11, 2008, which makes it more difficult to find the associated component. By removing the "means," but leaving the comma, it is unclear to which of the recited components contain the "current limiting" and the "below the voltage required" limitations. For the purpose of the art rejection of claim 21, this function will interpreted as associated with the apparatus (line 8). By contrast, claim 32 is not objected to. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 21-23, 25-26, 28-33 and 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buhring (US 6,097,761) in view of Ying (US 6,147,967) and Prendel (EP 0,551,114).

With respect to claim 21, Buhring discloses an apparatus (fig 11-12, item 17) for connecting modules (items 14-16) to a supply voltage in series in a control and data transmission installation (col. 2, lines 38-63; col. 3, lines 15-32), comprising:

a supply voltage input (item 11; col. 8, lines 15-19) and an associated supply voltage output (11a).

a connecting device (figs 12-16, item 60) for connecting the supply voltage input in series (col. 9, lines 13-16) to the supply voltage output in response to an ascertaining device (item 61; col. 9, lines 16-19) for ascertaining at least one electrical variable at the supply voltage output; and

wherein the apparatus is arranged to detect a flowing supply current (col. 13, lines 52-67; col. 14, lines 15-46).

Buhring does not expressly disclose:

A. The apparatus has at least one memory device for configuration storage;

B. The ascertaining device comprises a device for detecting the electrical load at the supply voltage output with current limiting and below the voltage required by a bus user of said control and data transmission installation to the supply voltage output, whereby said device for detecting the electrical load ascertains the flow of current resultant from applying said low voltage to the supply voltage output, and whereby the connecting device connects the supply voltage input in series to the output if said ascertaining device does not detect an overload in response to the flow of current resultant from applying said load voltage by comparison with a prescribed limit value of the electrical load stored in said memory device.

A. Ying discloses an apparatus (fig 6, 7, items 603, 721; col. 13, lines 52-67) for connecting modules (fig 7A-8G, items 703, 705) to a supply voltage in series (item 704; col. 4, lines 22-32) comprising a connecting device for connecting the voltage supply input in series with the output (fig 6, items 644a,b; fig 7, item 712; col. 14, lines 3-9, 22-32) in response to an ascertaining device (fig 3, item 315; fig 6, item 612, 622; col. 5, lines 34-67; col. 10, lines 9-34; col. 13, lines 60-67; col. 14, line 1-21) for ascertaining at least one electrical variable

and whereby said apparatus has at least one memory device (fig 6, items 612, 618; col. 3, lines 34-64; col. 10, lines 9-34).

Buhring and Ying are analogous because they are from the same field of endeavor, namely connecting modules to a supply voltage in series. At the time of the invention by applicants, it would have been obvious to one skilled in the art to modify

Buhring to include the memory disclosed in Ying in order to allow section of the bus system to be shutdown for maintenance purposes in addition to when faults occur (Ying, col. 2, lines 5-20).

B. Prendel discloses an apparatus for connecting modules to a supply voltage in series in a control and data transmission installation (figs 1, 8; pages 11-12, 15-17) comprising: a supply voltage input and an associated output (fig 8, item 6c), a connecting device (item 12a, b), and an ascertaining device (item 12) having at least one memory device (item 22). Whereby the ascertaining device comprises a device (page 16, line 11 to page 17, line 15) for detecting the electrical load at the supply voltage output by applying a low voltage to ascertain the flow of current (page 17, lines 7-8).

It would have been obvious to one skilled in the art to configure the Prendel low voltage below the voltage required by the user, since Prendel discloses that the voltage is for testing purposes only, not to operate the device. Further, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Buhring, Ying and Prendel are analogous because they are from the same field of endeavor, namely connecting modules to a supply voltage in series. At the time of the invention by applicants, it would have been obvious to one skilled in the art to modify the apparatus disclosed by Buhring and Ying with the ascertaining device disclosed in Prendel in order to test for faults in the modules.

With respect to claim 22, Buhring discloses the apparatus is arranged for use with a bus in an automation bus system (fig 11; col. 8, lines 15-32).

With respect to claim 23, Buhring discloses the ascertaining device is arranged to ascertain at least one electrical variable for detecting at least one of an electric load and a short circuit (figs 12-16, item 61; col. 13, lines 52-67; col. 14, lines 1-45).

With respect to claim 25, Buhring discloses the connecting device is a semiconductor switch (figs 13-16, item 60; col. 8, lines 46-59).

With respect to claim 26, Buhring discloses the apparatus comprises a bus connection device (item 17; col. 8, lines 33-34) for connection to an automation bus system (fig 11; col. 8, lines 15-32).

With respect to claim 28, Buhring discloses the apparatus has separate and electrically independent supply voltage inputs (item 11) and outputs (item 11a) for logic and for actuator equipment/sensor equipment (figs 12-13) of an associated module.

With respect to claim 29, Buhring discloses the apparatus comprises an associated module (items 14, 15, 16; col. 8, lines 15-19) in a control and data transmission installation for a bus user in an automation bus system (col. 8, lines 15-32).

With respect to claim 30, Buhring discloses the associated module is connected to the supply voltage essentially downstream of the connecting device (item 15). With one associated module present between two apparatus, it is inherent that the associated module is *essentially downstream* of the connecting device of the corresponding apparatus.

With respect to claim 31, Buhring discloses the apparatus is arranged to detect a ground fault (col. 2, lines 38-63).

With respect to claim 32, Buhring, Ying and Prendel disclose the apparatus for connecting modules to a supply voltage in series, as discussed above in the rejection of claim 21. Ying (fig 7A) and Prendel (fig 1) also disclose placing a first module in series with a second module.

With respect to claim 33, Buhring (fig 11; col. 8, lines 15-32) and Prendel (figure 1; page 1) disclose a serial automation bus.

With respect to claims 35, Buhring, Ying and Prendel disclose the recite method, as discussed above in the rejection of claim 21.

With respect to claim 36, Buhring discloses controlling the connecting device comprises:

- comparing the detected load with a predetermined value (item 61; col. 8, lines 39-41 and 60-64); and

- connecting the supply voltage input to the associated voltage output if the detected load does not exceed the predetermined value (col. 9, lines 26-40).

With respect to claim 37, Buhring discloses controlling the connecting device comprises: connecting the supply voltage input to the associated supply voltage output if no short circuit has been detected (col. 9, lines 13-25).

With respect to claim 38, Buhring further discloses:

- detecting a flowing supply current (col. 8, lines 39-45 and 60-64); and

breaking the connection between the supply voltage input and the associated supply voltage output if the detected supply current exceeds a predetermined value (column 9, lines 26-40).

With respect to claim 39, Buhring, Ying and Prendel disclose the method of connecting multiple modules, as discussed above in the rejection of claim 32.

With respect to claim 40, Buhring discloses the connection takes place automatically (col. 8, line 60 to col. 9, line 40) or is controlled via the automation bus.

With respect to claim 41, Ying discloses a bus user connected only partially outputs an error message to indicate a short circuit or an overload at its voltage supply output, the error message being output to an indicator device or via the automation bus in order to control the automation bus system (col. 11, lines 36-62). Ying discloses that an error message is output to the automation control bus in order to control the bus system when an apparatus indicates a short circuit

With respect to claim 42, Ying further discloses the error message output via the automation bus comprises at least one data item identifying the apparatus (col. 10, lines 16-33).

5. Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Buhring, in view of Ying, Prendel, and the EN 50254 standard.

Buhring, Ying and Prendel disclose the control and data transmission installation as claimed in claim 33), but do not expressly disclose the automation bus comprises a bus in accordance with EN 50254. It would have been obvious to one skilled in the art to have modified the control and data transmission installation as disclosed in Buhring,

Ying and Prendel to comply with the EN 50254 standard, in order to allow the automation bus system to be operated and sold in Europe.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADI AMRANY whose telephone number is (571)272-0415. The examiner can normally be reached on Mon-Thurs, from 10am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on (571) 272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2836

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Sherry/
Supervisory Patent Examiner, Art Unit 2836

AA